

AMENDMENTS TO THE SPECIFICATION:

Page 7, amend the third paragraph (lines 14-18) as follows:

For purposes of the present invention, the term “bead[[s]]” refers to a particle that can be coated with a biomolecule. For example, a preferred bead has a range of sizes, from 0.1  $\mu\text{m}$  to 1000  $\mu\text{m}$ . Beads may be made of any material, such as glass, metallics, etc. Beads may be coated with any biomolecule. Beads may be in solution, in a sample, packed, in suspension, or any other suitable arrangement. Multiple beads define interstitial spaces each having a volume of 1 nL to 1000 nL.

Page 8, amend the fifth paragraph (lines 15-17) as follows:

For purposes of the present invention, the terms “microcolumn” and “microfluidic channel” refer[[s]] to a column having a length of 5 mm to 2 cm, a breadth or width of [[100]] 10 to [[300]] 500  $\mu\text{m}$  and a depth of 10 to 100  $\mu\text{m}$ .

Page 8, amend the sixth paragraph (lines 19-21) as follows:

For purposes of the present invention, the term “vessel” refers to a tube, canal, channel or container in which a fluid, sample, suspension or solution is contained, conveyed, circulated or conducted. A vessel as described herein has a width of 250  $\mu\text{m}$  to 500  $\mu\text{m}$ , a length of 0.5 cm to 3.0 cm and a depth of 50  $\mu\text{m}$  to 100  $\mu\text{m}.$

Page 8, amend the paragraph bridging pages 8 and 9 as follows:

For purposes of the present invention, the term “obstructive feature” refers to a feature in the microcolumn that prevents mixing of one type of sensor beads located in one sensing region of the microcolumn with other sensor beads located in a different perhaps adjacent sensing region of the same microcolumn. The obstructive feature may also be used to prevent flushing and to retain beads in the microcolumn. Neighboring obstructive features may be located within 5 $\mu$ m to 20 $\mu$ m from each other.

Page 9, amend the first full paragraph (lines 4-6) as follows:

For purposes of the present invention, the term “foundation beads” refers to beads that are introduced and packed into the microcolumn before the sensor beads are packed into the same column. Foundation beads as described herein have a diameter of 30 $\mu$ m to 1000 $\mu$ m.